

AMENDMENTS TO THE CLAIMS

The below listing of claims replaces all prior versions of claims in the application.

1. (Currently Amended) An active tube, comprising;
a working channel tube inside of which is used as a working channel;
an SMA coil arranged along said working channel tube;
one or more circular weights attached on an outer surface of said working channel tube
and said SMA coil; and
an outer skin tube covering said outer surface of said weight including said working
channel tube and said SMA coil,
wherein the outer skin tube has a plurality of constrictions, and the circular weights are
built in the constructions.

2. (Currently Amended) An active tube, comprising a tip; and
a main tube connected to said tip, and
said tip comprises:
a working channel tube connected through to said main tube;
a bending mechanism to support said working channel tube and to bend said working
channel tube;
one or more circular weights attached on an outer surface of said bending mechanism;
and

an outer skin tube covering said outer surface of said bending mechanism together with said weight, and

wherein said bending mechanism includes an SMA coil arranged in a longitudinal direction of said working channel tube, and

wherein the outer skin tube has a plurality of constrictions, and the circular weights are built in the constructions.

3. (Previously Presented) The active tube as set forth in Claim 2, wherein, on a front end side of said main tube, a cylindrical thin film inflatably covers an outer surface of said main tube, and

said main tube is provided with a balloon inflating channel along an axis of said main tube to supply gas or liquid into a space between said main tube and said thin film, thereby said thin film is inflated to form a balloon.

4. (Original) The active tube as set forth in Claim 2, wherein an endoscope is inserted into said working channel tube of said tip.

5. (Original) The active tube as set forth in Claim 2, wherein said endoscope is built in said tip.

6. (Cancelled)

7. (Previously Presented) The active tube as set forth in any one of Claims 4 and 5, wherein a front end of said endoscope is provided with an image input part comprising:

an optical fiber or an image pickup device, and a light guide for illumination or LED to illuminate forward of said image input part.

8. (Previously Presented) The active tube as set forth in Claim 2, wherein; said bending mechanism is provided with a pair of links attached at an interval to said working channel tube; an outer skin contacted to said pair of links and covering said working channel tube; and an air layer is formed with said pair of links and an outer surface of said working channel tube.

9. (Previously Presented) The active tube as set forth in Claim 8, wherein: said links have small diameter holes, and

said SMA coil is inserted through a first small diameter hole of a behind link and a first small diameter hole of a front link, bent back at a front end of said front link, inserted through a second small diameter hole of said front link and a second small diameter hole of said behind link, and is wired.

10. (Cancelled)

11. (Previously Presented) The active tube as set forth in Claim 8, wherein a plurality of said SMA coils are provided at equal intervals with respect to a central axis of said working channel tube between said pair of links.

12. (Currently Amended) The active tube as set forth in Claim 2, wherein; said main tube is provided along an axis of said main tube with a working channel connected through to said working channel tube and a wiring channel to insert ~~[[an]]~~ a wire to be connected to said SMA coil of said bending mechanism.

13. (Currently Amended) An active tube system, comprising:
active tube,
a control box to control a bending mechanism of said active tube, and
a control input part to input control information for said bending mechanism to said control box; and
said active tube comprises a tip and a main tube connected to said tip; and wherein
said tip of said active tube is provided with;
a working channel tube connected through to said main tube;
a bending mechanism to support said working channel tube and bend said working channel tube;
one or more circular weights attached to an outer surface of said bending mechanism; and

an outer skin tube covering said outer surface of said bending mechanism together with said weight; and

wherein said bending mechanism includes an SMA coil arranged in a longitudinal direction of said working channel tube, and

wherein the outer skin tube has a plurality of constrictions, and the circular weights are built in the constructions.

14. (Previously Presented) The active tube system as set forth in Claim 13, wherein, on a front end side of said main tube, a cylindrical thin film inflatably covers an outer surface of said main tube; and

said main tube is provided with a balloon inflating channel along an axis of said main tube to supply gas or liquid into a space between said main tube and said thin film, thereby said thin film is inflated to form a balloon.

15. (Original) The active tube system as set forth in Claim 13, wherein an endoscope is inserted into said working channel tube of said tip.

16. (Original) The active tube system as set forth in Claim 13, wherein said endoscope is built in said tip.

17. (Cancelled)

18. (Previously Presented) The active tube system as set forth in any one of Claims 15 and 16, wherein a front end of said endoscope is provided with an image input part comprising;
an optical fiber or an image pickup device, and
a light guide or LED for illumination to illuminate forward of said image input part.

19. (Previously Presented) The active tube system as set forth in Claim 13 wherein;
said bending mechanism is provided with a pair of links attached at an interval to said working channel tube;
an outer skin contacted to said pair of links and covering said working channel tube; and
an air layer is formed with said pair of links and an outer surface of said working channel tube.

20. (Previously Presented) The active tube system as set forth in Claim 19, wherein:
said links have small diameter holes, and
said SMA coil is inserted through a first small diameter hole of a behind link and a first small diameter hole of a front link, bent back at a front end of said front link, inserted through a second small diameter hole of said front link and a second small diameter hole of said behind link, and is wired.

21. (Cancelled)

22. (Previously Presented) The active tube system as set forth in Claim 19, wherein a plurality of said SMA coils are provided at equal intervals with respect to a central axis of said working channel tube between said pair of links.

23. (Previously Presented) The active tube system as set forth in Claim 13, wherein;
said main tube is provided along an axis of said main tube with;
a working channel connected through to said working channel tube; and
a wiring channel to insert a wire to be connected to said SMA coil of said bending mechanism.

24. (Previously Presented) The active tube system as set forth in Claim 13, wherein;
said control input part has a control stick with a formed grip and said control stick is provided with a slide type operational mechanism which can be grabbed with a palm.